

SECTION 01725**PROJECT AS-BUILTS****PART 1 - GENERAL****1.01 SCOPE**

- A. This section shall serve to set out guidelines for as-built drawings submitted to Miami-Dade Water and Sewer Department (hereafter called "the Department") for donation projects.
- B. The Miami-Dade Water and Sewer Department's Standard Detail GS 0.5, Sheet 2 of 2, formerly known as Detail WS 0.5, Sheet 2 of 2 which was incorporated in Part 3 of the Dade County Public Works Department's "Public Works Manual", establishes minimum requirements for "as-built" submittals. In case of conflict between the referenced standard details and these specifications, these specifications shall govern.
- C. Nothing in this manual is intended to set out policy for any area other than as-built format and content. References to other areas of responsibility that play a part in as-built preparation and review (such as design or construction) are given for exemplary or clarification purposes only. Interested parties should contact the appropriate office for information on present policy.

1.02 DEFINITIONS

In addition to the list of definitions contained in Section 01005, the following underlined terms shall have meanings as defined herein:

- A. "Contractor" as used herein refers to the licensed contractor permitted to supply labor, materials or equipment for use in the fulfillment of the Project.
- B. "Submitter" may be the contractor or his designated agent.
- C. The term "blue-line" as used herein shall include both blue and black-line reproductions.
- D. "Surveyor" as used herein shall mean a Professional Surveyor and Mapper registered in the State of Florida.

1.03 CRITERIA FOR AS-BUILTS

- A. As-builts shall be submitted for all projects where new water or sewer facilities will be conveyed to the Department. These facilities shall have as-built drawings showing all applicable data listed in Sub-section 1.05 and 1.06, herein, as located by a surveyor and prepared in accordance with these guidelines as part of the construction and inspection process.
- B. The Department reserves the right to require submittal of record drawings on electronic media, in accordance with Section 01775, "Magnetic Media Submittal"
- C. The Surveyor shall show on the as-built drawings the Florida State Plane Coordinate (current readjustment) of at least two horizontal control points. This requirement may be waived by the Department if the location of the project is more than one mile from the nearest GPS station listed

on file with the Miami-Dade County Public Works Department's Survey Office, as updated, or if all GPS stations within one mile of the project have been lost.

1.04 QUALITY ASSURANCE

A. CONTRACTOR'S REQUIREMENTS

1. As-built preparation and submittal shall ultimately be the responsibility of the Contractor.
2. As-builts shall be checked by the Contractor for errors and omissions prior to submittal to the Department.
3. A Bill of Materials (on Department form) shall also be certified as correct by signature and presented at the time of as-built submission. Quantities shown on the Bill of Materials shall match installed and as-built quantities, not quantities proposed, bid or bought nor scaled distances or quantities.

B. SURVEYOR REQUIREMENT

Facilities being shown on as-builts shall have been located under the direction of a Florida Registered Land Surveyor, regardless of whether the finished drawings will be signed and sealed by the surveyor.

C. COMPLIANCE WITH TECHNICAL STANDARDS

1. As-builts prepared under these guidelines are for the specific use of the Department and are not required to meet the minimum technical standards established by the Florida Board of Professional Land Surveyors in Chapter 61G17-6 of the Florida Administrative Code, pursuant to Section 427.027, Florida Statutes.
2. As-builts shall meet the minimum requirements established in these specifications. Ensuring compliance with guidelines established herein shall be the responsibility of the Utilities Development Division's, Field Operations Section, Inspections Unit (hereafter called "Inspections Unit"). The responsible position is the As-Built Review Inspector.

D. CERTIFICATION

1. As-builts shall include a signed, sealed and dated certification statement by the responsible surveyor or Engineer-of-Record stating the information was obtained under his direction and is true and correct as shown. If signed and sealed by the Engineer-of-Record the certification must also state that the information was collected in the field by a Florida Registered Land Surveyor under his direction.
2. Certifier shall be fully responsible for the accuracy of the as-builts. As-builts may not contain any statement that the information was obtained from another party other than a licensed land surveyor under his direction. (For example a statement such as "As-built information provided by Contractor" shall not be permitted).

1.05 AS-BUILT REVIEW PROCESS

A. DELIVERY TO DEPARTMENT

1. The complete submittal package as defined below shall be delivered to the Inspections Unit.
2. As-builts shall not be accepted by the Inspector in the field.
3. Delivery via third-party courier shall be acceptable. However, such delivery shall not relieve the submitter of his responsibility to call the Inspections Unit to confirm arrival and acceptance of as-builts for review.
4. Incomplete submittals will not be accepted for review nor held by the Department.

B. SUBMITTAL PACKAGE:

The following shall be submitted as one package in order to be accepted for initial review by the Inspections Unit.

1. Initial submittal shall include only the following: one set of signed and sealed blue-line copies, one set of plats, if applicable, and the Bill of Materials.
2. Final submittal shall consist of corrected 4-mil Mylar(s) and the following sets of signed and sealed blue-line copies shall be submitted in order for as-builts to be considered complete:

Three (3) sets	-	for Water Main Projects,
Four (4) sets	-	for Gravity Sewer Main Projects, and
Five (5) sets	-	for Force Main\Pump Station Projects.

As-builts shall be signed and sealed by the surveyor and shall meet format requirements.

3. If the project contains water or sewer service to newly or recently platted lots, the following are also required:
 - a) At least one COMPLETE set of copies of the RECORDED plat(s) for the involved lots shall be submitted along with the as-builts. Non-recorded plats or incomplete sets (common example: Sheet 2/2 submitted without sheet 1/2) will not be accepted. Final as-built acceptance shall require TWO sets.
 - b) In lieu of recorded plats one copy of a tentative plat signed by a representative of the Dade County Public Works Department, Plats Division may be acceptable for as-built purposes. The Plats Division representative should attest that the lot and block numbers, street names, easements and other pertinent data shown are as will be recorded in the plat's final form. In this case submitter is responsible to provide a copy of the recorded plat to the Department's New Business office before any water meters will be set on the project.
4. A Bill of Materials completed and signed by the contractor shall also be submitted. Use the form provided by the Inspections Unit, also appended immediately following this section. A copy or FAX is acceptable for the initial review but a signed original must be submitted

before as-built review will be considered complete. Instructions for filling out the form are available from Inspections Unit personnel.

C. DEPARTMENT PROCESSING

1. The Department will complete its entire review of the as-builts within the three working days following the day of submittal (ex. as-builts submitted on a Friday shall be completely reviewed by the following Wednesday).
2. As-builts will be initially checked by the responsible Field Inspector to verify that they are an accurate representation of the work as installed and that the job as shown is complete and in accordance with the permitted plans.
3. Following Field Inspector's review, as-builts will be reviewed in depth by the As-Built Review Inspector to ensure compliance with these standards. The Review Inspector will also check the Bill of Materials at this time.

D. CAUSE FOR NON-REVIEW

1. If review by either the Field Inspector or Review Inspector reveals errors or omissions of a gross nature the as-builts shall be deemed "non-reviewable". As-builts containing errors or omissions of a gross nature shall include those with omission of major sections of the installation, water and sewer as-builts on same sheet, those lacking large amounts of information and other errors or omissions that are considered gross in the opinion of the reviewer.
2. In cases when an as-built is considered "non-reviewable", it shall be marked "Not Reviewed Further", the reviewer shall note comments regarding obvious problem(s) and shall be returned to submitter. Such as-builts will not be considered as having been reviewed for the purposes of Sub-section 1.05-E, below.

E. FINALITY OF REVIEW

1. The Department shall have only one opportunity to review a given set of as-builts and generate an original punch list. Successive reviews are solely for the purpose of ensuring that original punch list items are completely and correctly done.
2. Successive punch list items may only be added to correct a problem resulting from submitter's efforts to comply with the original punch list. No new original punch list item(s) may be added. Submitter shall be required to make these successive changes.
3. In the case of an oversight on the part of the Review Inspector an original punch list item may be added to the list or requested of the submitter after the valid time for such items. It shall be entirely at the discretion of the submitter whether he makes this correction or not. The Department does not require that the correction be made as a condition of accepting the as-builts.

F. NOTIFICATION

1. Unless otherwise arranged, upon completion of the as-built review the Review Inspector shall notify the permitted Contractor only when corrections are required. The package may then be picked up for correction at the Inspections Unit office.
2. The Department will not initiate notification when the as-builts are accepted. Interested parties may call the Inspections Unit office anytime after the three day review period to check on the status of as-builts.

G. ACQUISITION AND RESUBMITTAL

1. After notification, red-lined as-builts along with the as-built punch list and the balance of the original submittal package can be acquired at the Inspections Unit. The Department will return everything that accompanied the original submittal. The Inspections Unit office will not hold any parts of the submittal without the balance of the package.
2. After making the corrections requested on the punch list, return the complete package to Inspections Unit. Return plat(s), material breakdown and any other documents included with the original submittal.
3. The same "three day rule" outlined in Sub-section 1.05-C, above, shall apply to resubmittals.
4. All "red-lined" prints (the originally submitted blue-lines marked up by the inspectors) shall be returned with the resubmittal. Failure to do so may delay the review process.
5. Corrected mylars, where required, and the ORIGINAL copy of the corrected Bill of Materials shall be resubmitted with the final submittal.

H. "COURTESY REVIEW"

1. Where requested by the permittee and at the discretion of the Field Inspector, a preliminary "courtesy review", may be conducted.
2. "Courtesy Review" shall be conducted **in the field by the inspector** responsible for the job solely as a courtesy to the Contractor and is not to be construed as a review for the purposes of these requirements.
3. This review shall not involve the Inspections Unit office (ex. receiving, processing or holding as-built drawings for courtesy review) nor are any indications of acceptability or corrections needed binding upon the Department.

I. DISPUTES OR INTERPRETATION

1. Resolution of disputes and interpretation of these requirements is the responsibility of the As-Built Review Inspector. Submitting parties are urged to work with him to resolve any problems of this nature.
2. Where necessary, the submitting party may request a hearing with the Chief Inspector in matters of dispute or interpretation. The Chief Inspector's decisions shall be considered final as regards the Department.

1.06 AS-BUILTS SUBMITTAL REQUIREMENTS

A. FORMAT AND GENERAL REQUIREMENTS

1. Size shall be 24" X 36", except as noted below.
 - a) If the original design was approved by the Department on smaller-sized paper then the as-builts may be submitted on the same-sized smaller paper or on larger-sized paper.
 - b) In no case shall as-builts larger than 24" X 36" be accepted. This requirement does not apply to plat drawings.
2. All information shall be drawn in ink.
3. The use of posche (shading) is prohibited.
4. Except as noted below, final as-built submittal shall consist of:
 - a) One set of 4 mil thick mylars and the following sets of blue-line copies, signed, sealed and dated by the responsible surveyor or Engineer-of-Record:

Three (3) sets	-	for Water Main Projects,
Four (4) sets	-	for Gravity Sewer Main Projects, and
Five (5) sets	-	for Force Main\Pump Station Projects.
 - b) No Mylar(s) are required for water and sewer connections made donation blankets
5. In certain instances blue or black ink may be used to make minor additions or corrections directly to the submitted mylars and/or blue-lines. No pencil or different colored ink shall be used. Such minor addition shall be coordinated with the As-Built Review Inspector.
6. Preferred scale is 1"=40' horizontally and 1"=4' vertically. Other scales may be permitted but must be approved by the Department prior to preparation of the drawings.
7. Provide separate as-built drawings for water and sewer conveyances. Where water and sewer are shown on the same print dash the water on the sewer as-builts and show only sewer as-built information. Vice versa for the water as-builts.
8. Do not staple water and sewer as-builts together.

B. QUALITY OF AS-BUILTS

In ensure that as-builts may serve their intended purposes now and in the future, they should be prepared with consideration for quality. The Inspections Unit will consider the following elements to ensure the quality of as-builts.

1. Appearance: As-builts shall be prepared in a professional manner consistent with common engineering standards for layout, lettering and line-work.

2. "Understandability": As-built information shall be portrayed in a manner that is readily understandable by someone not familiar with the specific job.
3. Clarity: Preparer shall endeavor to present as-built information clearly without "cluttering" the drawing.
4. Reproducibility: As the as-builts will be reproduced by the Department in microfiche form the following points are important;
 - a) Mylar(s) shall not have an overly dark or opaque overall appearance. (Improper reproduction)
 - b) Mylar(s) and/or blue-lines shall not be vague or light. Usually this is a result of the submitted as-builts being too many reproduction generations removed from the original.
 - c) Type size shall be sufficiently large to be legible when viewed on a microfiche viewer.

C. USE OF DESIGN DRAWINGS:

Use of the design prints as a basis for preparing as-built drawings is acceptable with the following conditions:

1. As-builts based on design drawings shall be made from a non-permitted set of drawings.
2. If the preparer is using design drawings that he did not prepare he shall obtain permission from the design engineer for this usage. This permission shall be evidenced to the Department by a letter of authorization from the Engineer of Record accompanying the as-built submittal.
3. It is to be understood that the Department's requirements for as-builts are separate and distinct from the Department's requirements for design prints. In other words, because a drawing was accepted as a design print does not make it necessarily acceptable as a basis for an as-built. The as-builts must meet the criteria outlined in this manual and any subsequent revisions thereto.

D. CERTIFICATION:

1. The certification statement described in Sub-section 1.04-D, herein, shall appear on the first page of both the water and sewer as-builts or, alternatively, the first page containing actual as-built information.
2. Certification statement shall be signed, sealed and dated on the blue-line copies by the responsible surveyor. The Mylar(s) need not be signed nor sealed. The statement shall contain the printed name of the signatory along with the name and address of the firm (if any) he represents.

1.07 AS-BUILT CONTENT REQUIREMENTS

A. GENERAL

The following shall be made a part of any as-built submittal for water or sewer, where applicable:

1. The project name, number and the words "As-Built Water" or "As-Built Sewer", as applicable, or the words "Record Drawing" all prominently displayed. Surveyor's name, company, address and phone number shall also be displayed.
2. Scale, north arrow and any symbol legend needed.
3. All involved streets shown with centerlines, right-of-way lines, widths and names, with matching plat, if applicable, subdivision name, phaseline and number. (Phasing to be nearest valve and manhole in limits of phase area) Show station at all intersecting streets.
4. All involved lots and blocks shown and correctly designated (to match plat).
5. All control lines identified (i.e. centerline, section line, etc.).
6. Pipeline shall be tied to baseline or centerline not right-of-way. When pipeline is tied to baseline, baseline shall be tied to centerline. Right-of-way line shall be tied to centerline or baseline.
7. Baseline or centerline shall be tied to section corners, or to monument lines or to right-of-way lines.
8. Easement lines shall be tied to baseline or centerline, giving stations and angle turned.
7. Show all horizontal curve data. Point of curvature and point of tangency shall be set in the field, reference P.C. and P.T. or P.I.
8. Stationing shall proceed from south to north and/or from west to east. Stationing shall be the same as shown on construction drawings.
9. On vertical control refer to datum used (such as, NGVD, City of Miami), also show bench mark used.
10. Easements:
 - a) Easements, if any, shall be clearly shown with size and tied to centerline or baseline.
 - b) Official Record Book (ORB) and page number shown on right-of-way.
 - c) Easements are required for any facilities not in the public right-of-way. An easement may also be required for a main in the public right of way if there is insufficient side clearance to the right-of-way line to permit maintenance of the pipeline (usually 6' for water and force mains and 7.5' for gravity sewer mains).

11. All "proposed" information shall be removed from as-builts or neatly lined out, leaving only "as-built" information reflected in drawing. Alternately, as-built numerical information may be presented in a format that clearly distinguishes it from the proposed data (ex. enclosed in a box or circle). This format should be explained in a legend and non-applicable text removed or lined out.
12. Site location sketch shall be provided showing the project site and surrounding area with all streets clearly named, its own north arrow and scale (1"=300', preferably). The section, township and range shall also be provided, therein.
13. Separate water and sewer profiles.
14. All mains shall be stationing and all facilities labeled. As-builts shall show stations for all services. As-built lengths and distances for service runs shall also be given.
 - a. Stations shall run along the centerline, monument line or section line. Avoid the use of minus (-) stations.
 - b. For water and force mains use one continuous stationing system. Stationing shall start at a connection point to the existing main.
 - c. For gravity sewer, it is preferred that a new set of stations be used for each manhole run, i.e. each downstream manhole be designated 0+00 for that run.
 - c. Where different stationing systems cross, show the equation station.
 - d. Label and station all valves, fittings, services, outlets, manholes, deflection points and other components in the line. The labels and stations shall coincide, plan and profile.
15. Tie-in Points:
 - a) All tie-in points, water or sewer shall be tied to the centerlines of the nearest intersecting streets.
 - b) In instances where this is impractical, the tie-in may be located reference to a known Department facility such as a valve or manhole. This facility must be fully identified with atlas page, Department as-built number and page and its designation and station as given therein. Approval for this method of location shall be secured with the Inspections Unit As-Built Review Inspector.
16. Clearly show and label what is new and what is existing at the tie-in points.
17. The ends of all services and laterals shall be fully located by reference to the main and/or the nearest property line(s).
18. Show all outlets and stub-outs with size, material, length, direction and elevation (top of pipe for water and force main, invert for gravity sewer).

19. On all pipe fittings of 36-inch diameter or over, including tees, bends, crosses, wyes and bevels, station and elevations shall be taken at the ends and center points to reflect the true attitude of the fitting.
20. Elevations of natural ground or pavement over pipelines shall be shown at each position where the pipe elevation is shown.
21. Manhole rim and valve box manhole rim elevations shall be shown.
22. Locations, elevations and size of all casings shall be shown.
23. Locations and top and bottom elevation of all sheeting, including sheeting left in-place, shall be shown.
24. Where service is not at a right angle (90 degrees) to main line, tie service with length of offset to nearest property line. All connection points shall be tied to nearest known intersection and/or corner.
25. All point of intersections shall be shown. For mains 24-inch and larger deflection angles shall be shown. Angle can be substituted with bearings.

B. WATER AS-BUILTS:

Water as-builts shall include the following:

1. Plan showing size, material and offset of main, deflections (if any), stations of services, hydrants and fittings at the main (if perpendicular to it), and at main, deflections (if any) and end of service, if at any other angle.
2. Profile showing ground and top of pipe elevations every 100 feet , maximum, at any change in grade (with corresponding station) and at every fitting. Show size and material of pipe and all fittings with stations. Stationing system shall be the same as that used in the plan view.
3. Distances from main to all valves, fire hydrants and meter boxes shall be shown. Tie hydrants to right-of-way. In established areas, the Surveyor shall run-out right-of-way lines.
4. All "Assembly Detail" shall be provided for all turbo meter installations and for all meters greater than four (4) inches.
5. Label water service as either double, single, irrigation, and so on, based on type of service, including the diameter size.
6. When meter banks are used, show typical detail with size of service line, material and type.

C. GRAVITY SEWER

Gravity sewer as-builts shall include the following:

1. Plan showing manhole numbers and stations, size and material of pipe. The size, material type, station locations and lengths of laterals shall also be shown. Stationing shall be in accordance to the Plans.
2. Profile showing manhole numbers (as per plan), rim elevations, invert elevations in and out of each manhole with directions, length and slope of line. Pipes with a slope less than the DERM (Dade County Department of Environmental Resource Management) minimum for a particular size of pipe shall not be accepted.

D. SEWER FORCE MAIN:

Sewer force main as-builts shall comply with the requirements for water main as-builts.

E. SEWER PUMP STATIONS:

The following shall be included on sewer pump stations as-builts:

1. Site plan of the pump station showing location, boundary lines and location of all surface facilities as determined by a Florida Registered Land Surveyor. Site plan shall also show utilities, such as those owned by FPL, BellSouth, and gas companies, all located by a Florida Registered Land Surveyor.
2. Plan and vertical cross-section of the station showing and identifying the piping and mechanical layout. Show elevations for top of wet and dry wells, bottom of wet well, pipe inverts, etc.
3. Electrical schematic as-built.
4. Statement as to the pump manufacturer, size, capacity (TDH), peak design capacity (in GPM) and Bill of Materials.
5. With the exception of the site plan, the pump station as-builts shall be certified, signed and sealed by the manufacturer or Engineer of Record and Contractor.
6. All utilities within pump station property shall be properly shown, along with their associated elevation and clearance.

F. PHASING

Phasing of projects must be approved by the Department's Plans Review office and such approval communicated to the Inspections Unit. Where phasing is approved the following additional requirements for as-builts shall apply:

1. The phase number must appear prominently on each sheet.
2. A prominent phase line should be drawn at the junctures of the submitted phase with any

- previous or subsequent phases. The phase line should be labeled and the phase numbers on either side of it identified.
3. Work in previous or subsequent phases should be "hatched" out or dashed in plan and profile and labeled "Not a Part" to clearly eliminate it from the as-builts.
 4. Clearly show what is part of the present phase and what is part of previous or subsequent phases at the tie-in points or phase lines. Make certain that this matches what was previously submitted with any earlier phases.
 5. Unless otherwise authorized, phases shall end at a valve for water and force mains and at a manhole for sewer.

PART 2 - PRODUCTS

___ (Not Used)

PART 3 - EXECUTION

3.01 ACQUISITION OF AS-BUILT INFORMATION

As-built information of underground facilities shall be taken in the field concurrently with the progressing construction and before it is backfilled. Otherwise the Contractor shall expose sufficient areas in order that the surveyor may meet the requirements of these guidelines.

END OF SECTION